DIGIFLEX® DIGITAL SERVO DRIVES
MODEL: DR100RE30A40LDC (-10, -16)

FEATURES:

- Fully digital, state-of-the-art design
- Space Vector Modulation and vector control technology
- 20kHz Digital current loop with programmable gain settings
- PIDF velocity loop with 100microsecond update rate
- PID + FF position loop with 100 microsecond update rate
- Resolver based commutation
- Surface-mount technology
- Small size, low cost, ease of use

- RS232/485 interface for setup and networking
- Windows© based setup software with built-in 8-channel digital scope
- Operates in torque, velocity or position mode with programmable gain settings
- Programmable profiling in all modes
- Fully configurable current, voltage, velocity and position limits.
- Step & direction mode for stepper replacement
- Encoder following with programmable gear ratio

- 4 programmable digital inputs
- 2 programmable differential inputs, configurable as step & direction, master encoder, or secondary encoder for dual loop operation
- 4 programmable digital outputs
- 2 programmable analog inputs (10-bit)
- 14-bit reference input or programmable analog input
- 2 programmable analog outputs (10-bit)
- Software selectable emulated encoder output resolution*

Model Number	Low	High
DR100RE30A40LDC	12-bit	14-bit
DR100RE30A40LDC -10	10-bit	12-bit
DR100RE30A40LDC -16	14-bit	16-bit

* See maximum speed table below

- Four quadrant regenerative operation
- Separate logic supply
- Bi-color LED status indicator
- Extensive built-in protection against:
  - over-voltage (programmable)
  - under-voltage (programmable)
  - short-circuit: phase-phase, phase-ground
  - over-current
  - over-temperature

*** Picture for reference only.**

ADVANCED MOTION CONTROLS
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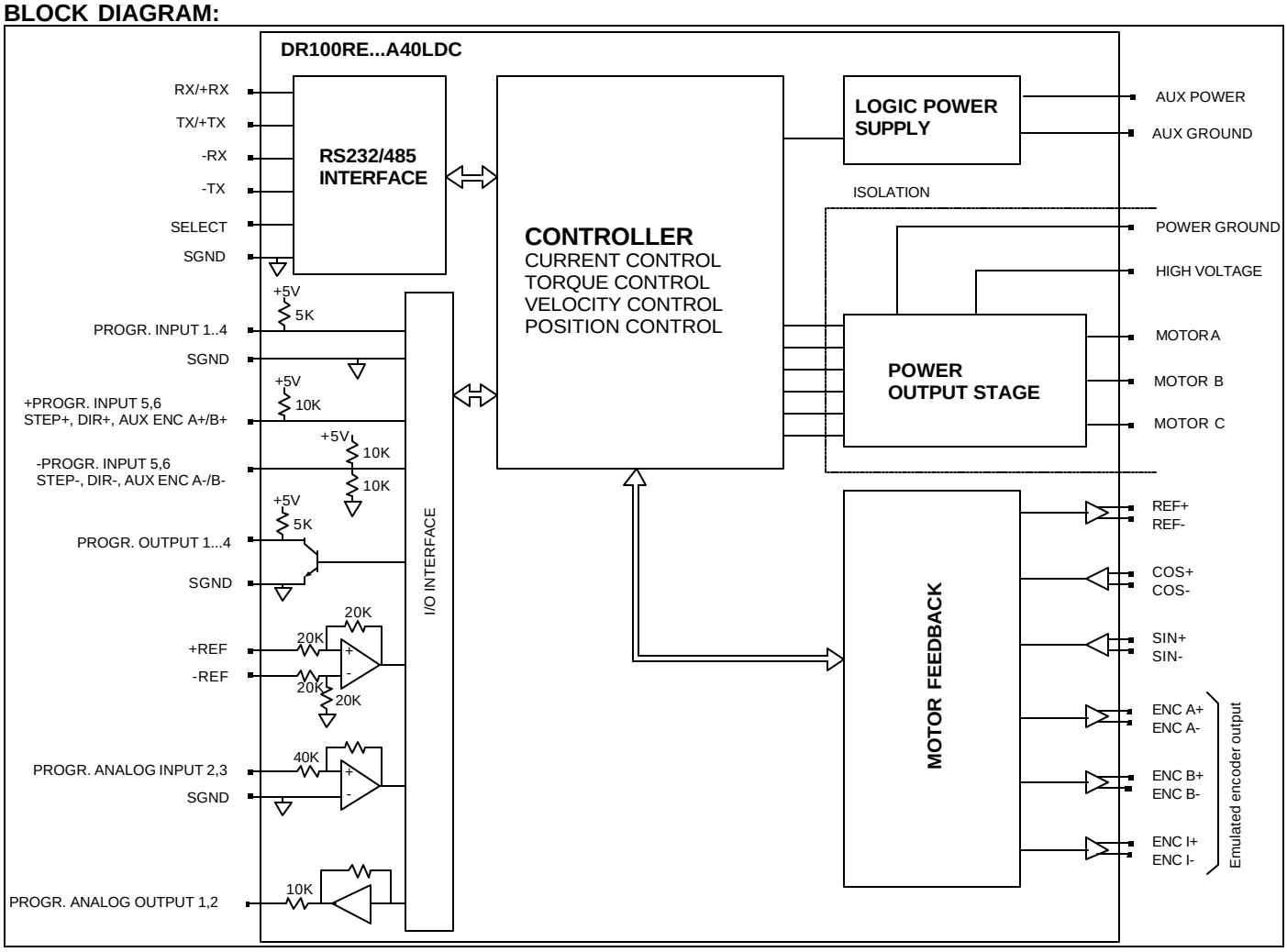
BLOCK DIAGRAM:



DESCRIPTION:

The DR100RE Series digital PWM servo drives are designed to drive brushed and brushless servomotors. These fully digital drives operate in torque, velocity, or position mode and employ Space Vector Modulation (SVM), which results in higher bus voltage utilization and reduced heat dissipation. The command source can be generated internally or can be supplied externally. In addition to motor control, these drives feature dedicated and programmable digital and analog inputs and outputs to enhance interfacing with external controllers and devices.

DR100RE Series drives feature a single RS232/485 interface, which is used for drive configuration and setup as well as online operation in networked applications. Drive commissioning can be accomplished through a fully graphical Windows© based application.
All drive and motor parameters are stored in non-volatile memory.

Maximum Motor Velocity

Emulated Encoder Resolution	Maximum Motor Speed*
10-bit	64000 rpm
12-bit	16000 rpm
14-bit	4000 rpm
16-bit	1000 rpm

* Assuming no other limitations limit the motor speed

SPECIFICATIONS:

POWER STAGE SPECIFICATIONS	**DR100RE30A40LDC (-10, -16)**
DC SUPPLY VOLTAGE	60…400 VDC
PEAK CURRENT	30A (21.2Arms)
MAXIMUM CONTINUOUS CURRENT	15A (10.6Arms)
MINIMUM LOAD INDUCTANCE	600 µH
SWITCHING FREQUENCY	20 kHz
HEATSINK (BASEPLATE) TEMPERATURE RANGE	0 to 65 ºC, disables at 65 ºC
POWER DISSIPATION AT CONTINUOUS CURRENT	300W
MIN. UNDER VOLTAGE SHUTDOWN	60 VDC
MAX. OVER-VOLTAGE SHUTDOWN	425 VDC
LOGIC SUPPLY VOLTAGE	20…80 VDC, 20W maximum

MECHANICAL SPECIFICATIONS	
POWER CONNECTOR: P1	Screw terminals
MOTOR FEEDBACK CONNECTOR: CN3*	15-pin high density female D-sub
I/O CONNECTOR: CN2*	26-pin high density female D-sub
COMMUNICATIONS INTERFACE (RS232/485): CN1*	9-pin female D-sub
SIZE	8.00 x 5.69 x 1.92 inches 203.2 x 144.4 x 48.7 mm
WEIGHT	2.12 lb. 0.99 kg

*** Mating connectors not included.**

PIN FUNCTIONS:

P1 - Motor and Power Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
P1	1	MA	Motor phase A	O
	2	MB	Motor phase B	O
	3	MC	Motor phase C	O
	4	PGND	Power ground	GND
	5	HV IN	DC motor supply	I
	6	GND AUX	Logic supply ground	GND
	7	PWR AUX	Logic supply power	I

CN3 - Motor Feedback Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN3	1	N/C	Not connected	
	2	N/C	Not connected	
	3	N/C	Not connected	
	4	REF+	Resolver reference (excitation) output. 4Vrms @ 5kHz.	O
	5	REF-		O
	6	SIN+	Resolver sine input. 2Vrms	I
	7	SIN-		I
	8	COS+	Resolver cosine input. 2Vrms	I
	9	COS-		I
	10	N/C*	Not connected	
	11	N/C*	Not connected	
	12	SGND	Signal ground	SGND
	13	+5V OUT	+5V @ 250mA max. Short-circuit protected.	O
	14	PAI3	Programmable analog input, single ended, 10-bit	I
	15	N/C*	Not connected	

* Contact factory for SR compatible options.

CN2 – I/O Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN2	1	PDO1*	Programmable digital output	O
	2	SGND	Signal ground	SGND
	3	PDO2*	Programmable digital output	O

	4	+REF	Differential reference signal input, 14-bit resolution. Can also be used as programmable analog input 1.	I
	5	-REF		I
	6	PAI2	Programmable analog input	I
	7	PAO1	Programmable analog output	O
	8	PAO2	Programmable analog output	O
	9	-PDI6	Programmable Input (see CN2-18) or Direction- or Aux Enc B-	I
	10	PDO3	Programmable digital output	O
	11	PDI1	Programmable digital input	I
	12	PDI2	Programmable digital input	I
	13	PDI3	Programmable digital input	I
	14	PDO4	Programmable digital output	O
	15	+5V OUT	+5VDC. Note: the total current on CN2-15 and CN3-13 combined should not exceed 250 mA	O
	16	SGND	Signal ground	SGND
	17	+PDI5	Programmable differential digital input, or Step+ or Aux Enc A+	I
	18	+PDI6	Programmable, differential digital input or Direction+ or Aux Enc B+	I
	19	PDI4	Programmable digital input	I
	20	Enc A+	Emulated channel A output. (10, 12, 14, or 16 bit resolution)	O
	21	Enc A-		O
	22	Enc B+	Emulated channel B output. (10, 12, 14, or 16 bit resolution)	O
	23	Enc B-		O
	24	Enc I+	Emulated index output. High when channel A and B or both low.	O
	25	Enc I-		O
	26	-PDI5	Programmable Input (See CN2-17) or Step- or Aux Enc A-	I

* Contact factory for SR compatible options.

CN1 - Communications Interface (RS232/485):

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN1	1	SELECT	RS232/485 selection. Pull to ground (CN1-5) for RS485.	I
	2	TX/+TX	RS232: Transmit; RS485: +TX	O
	3	RX/+RX	RS232: Receive; RS485: +RX	I
	4	N/C	Not connected	
	5	SGND	Signal ground	SGND
	6	-TX	RS485: -TX	O
	7	N/C	Not connected	

	8	-RX	RS485: -RX	I
	9	N/C	Not connected	

ORDERING INFORMATION:

Standard model: DR100RE30A40LDCX

Options: DR100RE30A40LDCX-10, DR100RE30A40LDCX-16

X indicates the current revision letter.

MOUNTING DIMENSIONS: